

## Electrochemical formation of nanostructured surfaces and design of anisotropic materials for display and photonic applications

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The electrochemical anodization technique of aluminum films on a glass substrate (Fig. 1) can provide good alignment properties for LC molecules on the substrate surface and can be one of the promising solutions for the design and production of different displays [1]. We also reported novel approach to preparation of new generation of anisotropic compounds and materials [2].

Here we summarize and show how various nanostructured surfaces and anisotropic materials can be used for display and photonic applications. The presented results demonstrate that the design of anisotropic materials, the electrochemical formation of nanostructured surfaces and their combination can

provide desirable variations in the anisotropic material properties; in the parameters of nanostructured surfaces for improved satisfaction of the requirements for using them as the components for display and photonic applications. We hope that the new results of our investigations may lead to better understanding of the nature of the liquid crystals, anisotropic and nanostructured materials and surfaces, and their practical applications.

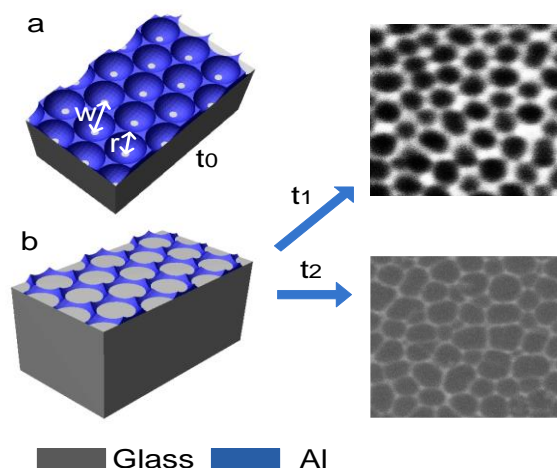


Fig.1 Anodization of Al film:  
a) The beginning of formation (time  $t_0$ );  
b) The end of formation (time  $t_1$  or  $t_2$ ).

### References

1. A. Smirnov, A. Stsiapanau, A. Mohammed, E. Mukha, H.S. Kwok and A. Murauski, Proc. SID Symposium "Display Week-2011, USA, 1385 (2011).
2. V.S. Bezborodov, V.I. Lapanik, G.M. Sasnouski and S.G. Mikhalyonok, 25<sup>th</sup> International Liquid crystal Conference. Dublin, Ireland, S-03.003 (2014).